

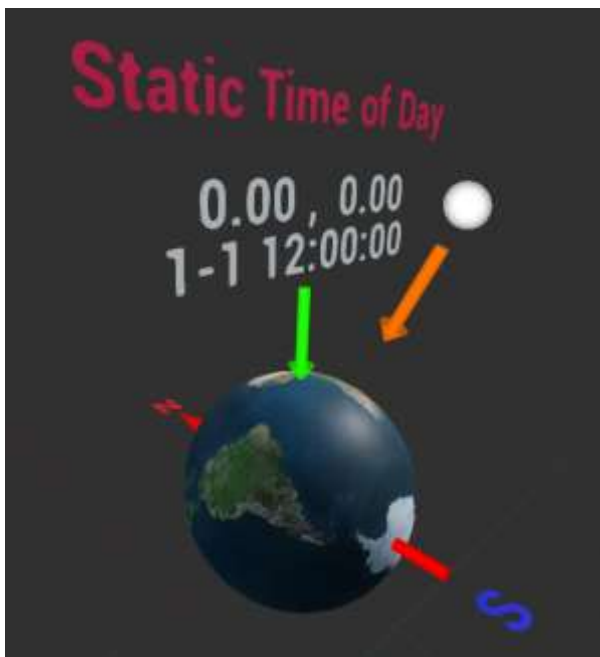
### Time of Day Blueprint Usage:

- 1) Copy whole folder into Contents folder of your project.
- 2) Drag&Drop Time\_of\_Day\_Blueprint into scene and change desired values to set up.

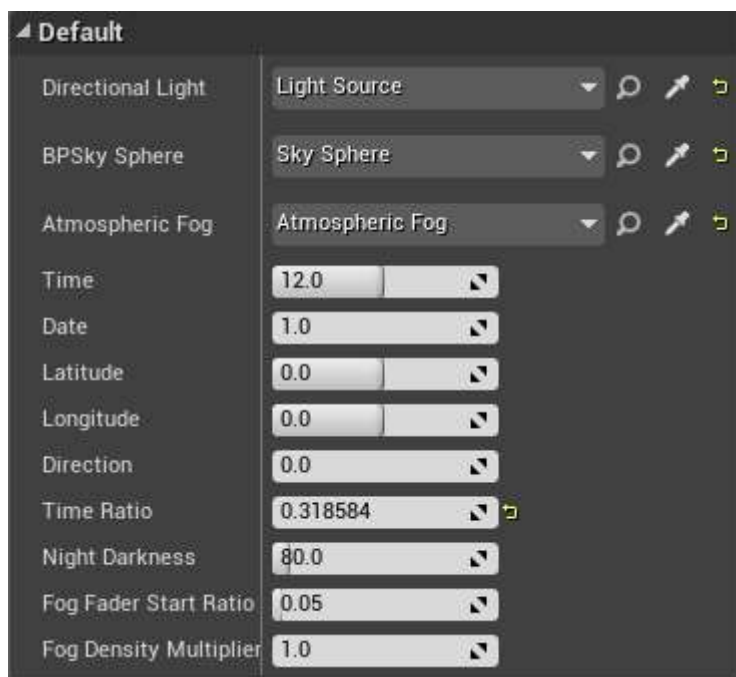
### Functions:

- 1) Static Time of Day
  - A. Setting up The directions of Sun and density of default fog.
  - B. Setting up transition area between day and night.
  - C. Can apply date and time from other blueprint.
- 2) Dynamic Time of Day
  - A. Setting up Speed of time flows
  - B. Can Set time for inversed flow.

### Details:



- Red Text: Displays for the current mode.
- Longitude and Latitude is Displayed in green
- Date and Time is Displayed in white.
- Note for Directional light will be popup if you set non-zero valued Time Ratio.
- Red Arrow designates Direction North and South.
- Green Arrow designates location of this area.
- Orange Arrow and little yellow circle stand for current position of the Sun.



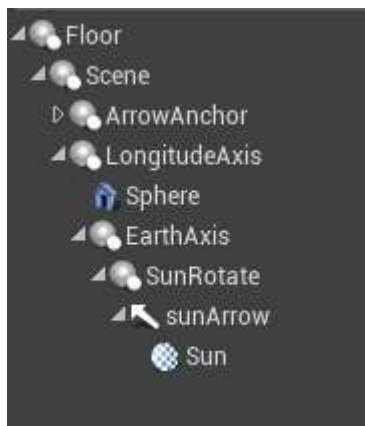
Every Variable has tooltip.

Directional Light / BPSky Sphere / Atmospheric Fog will be automatically updated.

## Tips: How to properly set up current position of Sun.

The earth has  $23.5^\circ$  Axis turn which makes seasonal change and White night effect at Pole.

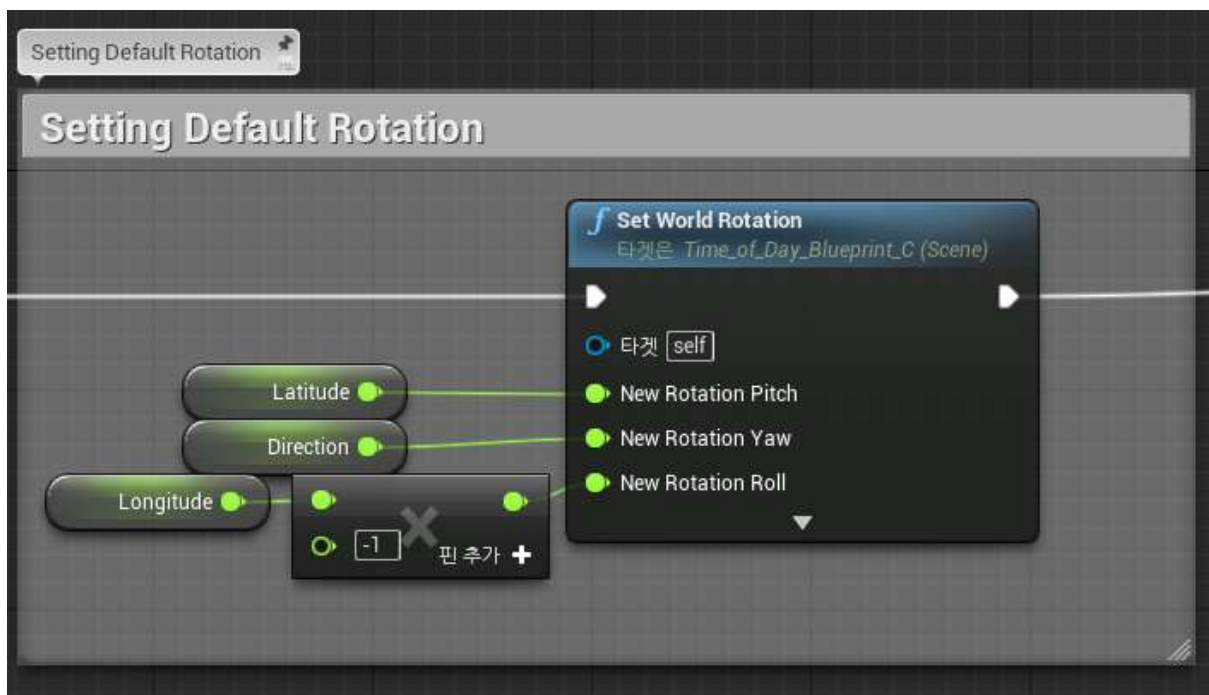
Original mathematics expression for getting Sun's position is complex. But thanks to hierarchy system, this can be simply simulated



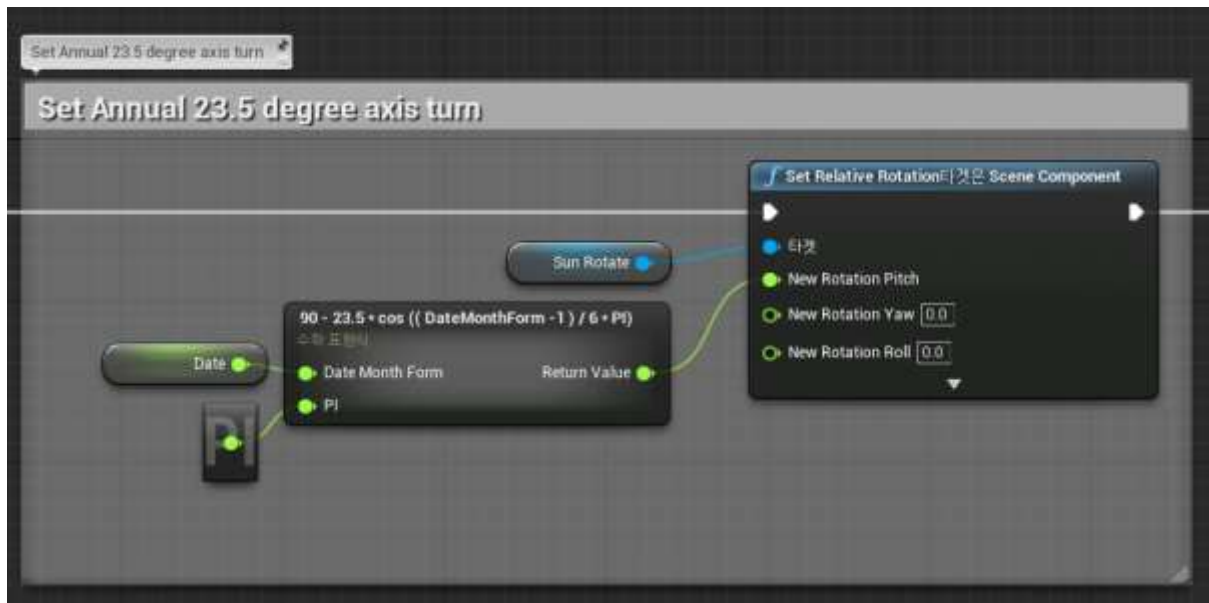
Setting up

- 1) Default Rotation (Scene)
- 2) Axis turn (Sun Rotate)
- 3) Rotation by time (Earth Axis)

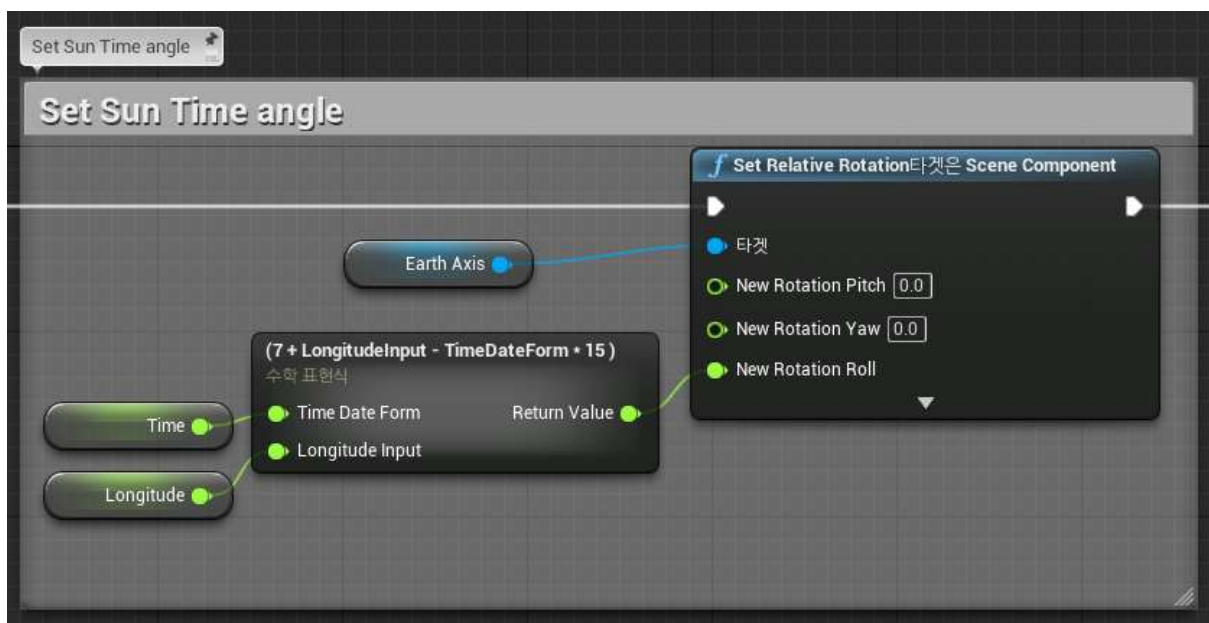
Are all we need to do.



First, Set up default rotation using Latitude, Longitude and Direction.



And, Set up axis turn.

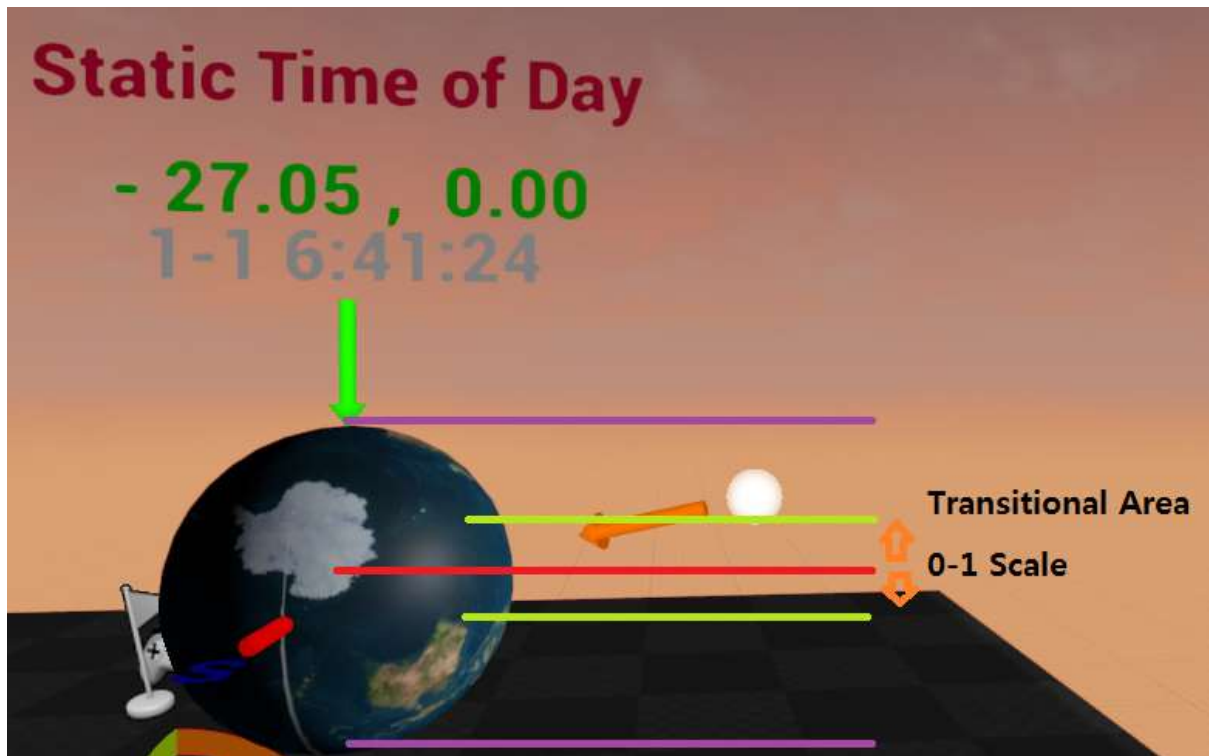


Assigning current rotation based on Time (float as hour form) and Longitude is the last part.

(Adding 7 is compensational balance. found this value by experiment)

## Improvements: Fog Fader Start Ratio

Sky Sphere and Atmosphere does not automatically co-work for night environment, which means the night does not get darker if you're using dynamic Time of Day.



To apply Transition, Linear interpolation is appropriate.

Night Darkness	80.0
Fog Fader Start Ratio	0.05
Fog Density Multiplier	1.0

Values for this calculation are up above. Night Darkness makes Ambient fog denser to decrease brightness of the sky at night (end of transition), and Fog Density Multiplier sets the fog density at day (start of transition).



Night sky without transition (Midnight, also happy New Year)

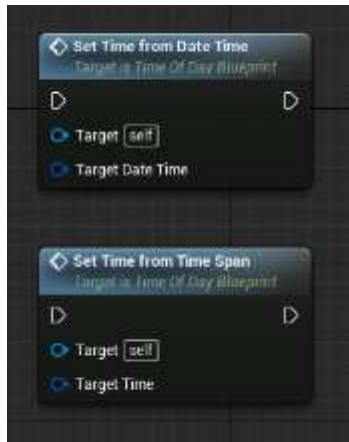


Night sky applying transition (Midnight, also happy New Year)

See "Danamic Time of Day with transition.avi" and "Danamic Time of Day without transition.avi" for more details.



Functions: Set time from Date Time, Set time from Time Span



This function can be called from other blueprint to setup current time.